

**REMARKS**

In the final Office Action, the Examiner rejects claims 1, 3-4, 8, 16-17, 22-26 and 36-40 under 35 U.S.C. § 103(a) as being unpatentable over BARHAM et al. (U.S. Patent No. 6,721,371) in view of SIMONE (U.S. Patent No. 4,953,184); rejects claims 5-7, 13, 27-29 and 33 under 35 U.S.C. § 103(a) as being unpatentable over BARHAM et al. in view of SIMONE, and further in view of QUIGLEY et al. (U.S. Patent No. 6,650,624); rejects claims 14-15 and 34-35 under 35 U.S.C. § 103(a) as being unpatentable over BARHAM et al. in view of SIMONE, further in view QUIGLEY et al., and further in view of PEYROVIAN (U.S. Patent No. 5,768,682); and rejects claims 9-10, 12 and 30-32 under 35 U.S.C. § 103(a) as being unpatentable over BARHAM et al. in view of SIMONE, in further view of QUIGLEY et al., and in further view of the Applicant's admitted prior art in Fig. 17(A). Applicant traverses the rejections under 35 U.S.C. § 103(a).

Claims 1, 3-10, 12-17, and 22-40 remain pending in the present application. Reconsideration and timely allowance of all claims in view of the following remarks are respectfully requested.

**Rejection Under 35 U.S.C. § 103(a) in view of BARHAM et al. and SIMONE**

Claims 1, 3-4, 8, 16-17, 22-26 and 36-40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over BARHAM et al. in view of SIMONE. Applicant respectfully traverses.

A proper rejection under 35 U.S.C. § 103 requires that three basic criteria be met. First, there must be some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest each and every claim limitation. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The combination of BARHAM et al. and SIMONE does not disclose or reasonably suggest the combination of features recited in Applicant's claims 1, 3-4, 8, 16, 17, 22-26, and 36-40.

Claim 1 recites a method of demodulating multiple channels, including providing a first analog to digital converter having an analog input and a digital output; providing a first plurality of digital demodulators, each demodulator having a programmable center frequency; coupling a band of frequencies to the analog input of the first converter, the band including a first plurality of channels; creating digitized samples of the band at the output of the first converter; coupling the digitized samples to the plurality of demodulators; demodulating a second plurality of channels from the band of frequencies; maintaining pre-computed sets of filter coefficients in non-volatile storage, each set corresponding to one of multiple low-pass digital filters, each filter having one of a predetermined set of bandwidths; selecting a first center frequency and first bandpass bandwidth for provisioning a first one of the first plurality of demodulators; retrieving the filter coefficients associated with the first bandpass bandwidth; subjecting the retrieved

filter coefficients to a bandpass transformation corresponding to the first center frequency; and loading the transformed filter coefficients into coefficient latches in the first demodulator. The combination of BARHAM et al. and SIMONE. does not disclose or suggest the combination of features recited in claim 1.

For example, BARHAM et al. and SIMONE, whether taken alone or in any reasonable combination, do not disclose or reasonably suggest retrieving the filter coefficients associated with the first bandpass bandwidth and subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1. In making the rejection, the Examiner relies on the col. 4, line 11 to col. 6, line 63 of BARHAM et al. as allegedly disclosing this feature (Office Action – pg. 3). Applicant respectfully disagrees with the Examiner's interpretation of BARHAM et al.

As described in Applicant's earlier response and referenced in the present Office Action at pages 3 and 4, col. 4, line 11 to col. 6, line 63 of BARHAM et al. discloses a high speed demodulator system that includes a number of IC demodulators (RADIS 10) used for acquiring and demodulating radio data communications. Each RADIS 10 is programmable with weight values and may be used to demodulate spread spectrum systems, such as code division multiple access and time division multiple access systems. Received analog signals (I, Q) are digitized by an ADC 122 and sent to a demodulator 123. Each RADIS 10 includes a reconfigurable finite impulse response (FIR) filter 14 that is configurable by receiving FIR weights from an external controller (col. 5, lines 31-34). The FIR filter 14 includes 64 stages implemented with 32 1-bit taps. A set of registers forming a weight stack or ring 16 (8x34) is connected to the parallel input port

for being programmed from the external processor. The output of the weight ring 16 is a set of tap weights which are input to the reconfigurable FIR filter 14. The output of FIR filter 14 is applied to a phase adjustment block 22 and a first input of an adder 24. This section of BARHAM et al. does not disclose or suggest retrieving the filter coefficients associated with the first bandpass bandwidth and subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1. In fact, the Office Action is completely silent with respect to these features and appears to imply that the reconfigurable FIR filter of BARHAM et al. includes or discloses these features. Applicant respectfully disagrees.

The disclosure of BARHAM et al. is related to a method for performing high speed demodulation by simultaneously using a number of demodulators on different portions of a received signal. Even assuming *arguendo* that the combination of BARHAM et al. and SIMONE fairly discloses maintaining pre-computed sets of filter coefficients in non-volatile storage, where each set corresponds to one of multiple low-pass digital filters and each filter has one of a predetermined set of bandwidths (a point that Applicant does not concede), Applicant respectfully submits that BARHAM et al. does not disclose or even remotely suggest retrieving the filter coefficients associated with the first bandpass bandwidth and subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1.

The disclosure of SIMONE does not remedy this deficiency in the disclosure of BARHAM et al.

For at least the above reasons, claim 1 is patentable over the cited combination of BARHAM et al. and SIMONE. Reconsideration and allowance of claim 1 are respectfully requested.

Claims 3, 4, 8, 16, 17, 22, 23, and 38 depend from claim 1. Accordingly, these claims are patentable over the combination of BARHAM et al. and SIMONE for at least the reasons set forth above with respect to claim 1. Moreover, these claims are patentable for reasons of their own.

For example, claim 3 recites loading the coefficient latches in the first demodulator with transformed coefficients corresponding to a second center frequency. Neither BARHAM et al. nor SIMONE disclose or suggest this feature of claim 3. In making the rejection, the Examiner relies on col. 3, line 43 - col. 6, line 67 of BARHAM et al. for allegedly disclosing these features (Office Action – pg. 5). Applicant respectfully disagrees with the Examiner's interpretation of BARHAM et al.

The cited section of BARHAM et al. discloses an array of programmable demodulators 10 each having a reconfigurable FIR. However, the mere disclosure of demodulators having reconfigurable FIRs does not disclose or suggest loading the coefficient latches in the first demodulator with transformed coefficients corresponding to a second center frequency, as recited in claim 3.

As noted-above, the combination of BARHAM et al. and SIMONE does not disclose or suggest retrieving the filter coefficients associated with the first bandpass bandwidth and subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency. Accordingly, because BARHAM et al. does not disclose retrieving the filter coefficients associated with the first bandpass bandwidth

and subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, BARHAM et al. similarly cannot disclose or suggest loading the coefficient latches in the first demodulator with transformed coefficients corresponding to a second center frequency, as required by claim 3.

The disclosure of SIMONE does not remedy this deficiency. Claim 3 is therefore patentable over BARHAM et al. and SIMONE for at least these additional reasons.

Reconsideration and allowance of claim 3 are respectfully requested.

Independent claim 24 recites features similar to (yet potentially different in scope from) claim 1. Accordingly, claim 24 is patentable over BARHAM et al. and SIMONE for at least reasons similar to those set forth above with respect to claim 1.

Reconsideration and allowance of claim 24 are therefore respectfully requested.

Claims 25, 26, 36, 37, 39, and 40 depend from claim 24 and are, therefore, patentable over BARHAM et al. and SIMONE for at least the reasons set forth above with respect to claim 24. Reconsideration and allowance of claims 25, 26, 36, 37, 39, and 40 are therefore respectfully requested.

**Rejection Under 35 U.S.C. § 103(a) in view of BARHAM et al. and SIMONE**

Claims 5-7, 13, 27-29, and 33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over BARHAM et al. in view of SIMONE, and further in view of QUIGLEY et al. Applicant respectfully traverses.

Claims 5-7 and 13 depend from claim 1. The disclosure of QUIGLEY et al. does not remedy the deficiencies in the disclosure of BARHAM et al. and SIMONE set forth above with respect to claim 1. Therefore, Applicant submits that claims 5-7 and 13 are

patentable over BARHAM et al., SIMONE, and QUIGLEY et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 1.

Claims 27-29 and 33 depend from claim 24. The disclosure of QUIGLEY et al. does not remedy the deficiencies in the disclosure of BARHAM et al. and SIMONE set forth above with respect to claim 24. Therefore, Applicant submits that claims 27-29 and 33 are patentable over BARHAM et al., SIMONE, and QUIGLEY et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 24.

**Rejection Under 35 U.S.C. § 103(a) in view of BARHAM et al., SIMONE, QUIGLEY et al., and PEYROVIAN**

Claims 14, 15, 34, and 35 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over BARHAM et al. in view of SIMONE, further in view of QUIGLEY et al., and further in view of PEYROVIAN. Applicant respectfully traverses.

Claims 14 and 15 depend from claim 5. The disclosure of PEYROVIAN does not remedy the deficiencies in the disclosure of BARHAM et al., SIMONE, and QUIGLEY et al. set forth above with respect to claim 5. Therefore, Applicant submits that claims 14 and 15 are patentable over BARHAM et al., SIMONE, QUIGLEY et al. and PEYROVIAN, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 5.

Claims 34 and 35 depend from claim 27. The disclosure of PEYROVIAN does not remedy the deficiencies in the disclosure of BARHAM et al., SIMONE, and

QUIGLEY et al. set forth above with respect to claim 27. Therefore, Applicant submits that claims 34 and 35 are patentable over BARHAM et al., SIMONE, QUIGLEY et al., and PEYROVIAN, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 27.

**Rejection Under 35 U.S.C. § 103(a) in view of BARHAM et al., SIMONE, QUIGLEY et al., and Applicant's Allegedly Admitted Prior Art**

Claims 9-10, 12 and 30-32 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over BARHAM et al. in view of SIMONE, in further view of QUIGLEY et al., and in further view of the Applicant's allegedly admitted prior art in Fig. 17(A). Applicant respectfully traverses.

Claims 9, 10, and 12 depend from claim 5. Applicant's Fig. 17(A) does not remedy the deficiencies in the disclosure of BARHAM et al., SIMONE, and QUIGLEY et al. set forth above with respect to claim 5. Therefore, Applicant submits that claims 9, 10, and 12 are patentable over BARHAM et al., SIMONE, QUIGLEY et al. and Applicant's Fig. 17(A), whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 5.

Claims 30-32 depend from claim 27. Applicant's Fig. 17(A) does not remedy the deficiencies in the disclosure of BARHAM et al., SIMONE, and QUIGLEY et al. set forth above with respect to claim 27. Therefore, Applicant submits that claims 30-32 are patentable over BARHAM et al., SIMONE, QUIGLEY et al., and Applicant's Fig. 17(A) whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 27.



**Conclusion**

In view of the foregoing amendments and remarks, Applicant respectfully requests the Examiner's reconsideration of the application and the timely allowance of pending claims 1, 3-10, 12-17, and 22-40. If the Examiner does not believe that all pending claims are now in condition for allowance, the Examiner is urged to contact the undersigned to expedite prosecution of this application.

As Applicant's remarks with respect to the Examiner's rejections are sufficient to overcome the rejections, Applicant's silence as to assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections (e.g., whether a reference constitutes prior art, motivation to combine references, assertions as to dependent claims, etc.) is not a concession by Applicant that such assertions are accurate or such requirements have been met, and Applicant reserves the right to analyze and dispute such assertions/requirements in the future.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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